

Abstract of the Disclosure

A method for producing a protective coat formed on the top surface of a substrate, or on the top surface of a thin film layered body formed on the substrate is disclosed, wherein the protective coat comprises silicon oxynitride in which the atomic ratio of Si/O/N is 100/X/Y ($130 \leq X+Y \leq 180$, $10 \leq X \leq 135$, $5 \leq Y \leq 150$), wherein the protective coat is formed by a sputtering method in which silicon nitride is used as a target material, an inert gas is used as a sputtering gas, and N_2 is used as a reactive feed gas. The oxygen component of the obtained protective coat comprising the silicon oxynitride is incorporated into the composition of the protective coat by degradation of moisture that was present in the substrate or the thin film layered body or in the reaction apparatus.